SEQUENCE LISTING

<110> TOOLGEN, Inc.

<120> Regulatory Zinc Finger Proteins

<130> Q88285

<140> US 10/538,041
<141> 2005-06-08

<150> US 60/431,892
<151> 2002-12-09

<160> 129

<170> PatentIn version 3.2

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Tyr Lys Cys Lys Gln Cys Gly Lys Ala Phe Gly Cys Pro Ser Asn Leu
1 5 10 15

Arg Arg His Gly Arg Thr His
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<400> 2

Tyr Ser Cys Gly Ile Cys Gly Lys Ser Phe Ser Asp Ser Ser Ala Lys
1 5 10 15

Arg Arg His Cys Ile Leu His
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Tyr Thr Cys Ser Asp Cys Gly Lys Ala Phe Arg Asp Lys Ser Cys Leu
1 5 10 15

Asn Arg His Arg Arg Thr His
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<210> 4
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Tyr Lys Cys Gly Gln Cys Gly Lys Phe Tyr Ser Gln Val Ser His Leu
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Thr Arg His Gln Lys Ile His
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<400> 5

Tyr Lys Cys Glu Glu Cys Gly Lys Ala Phe Arg Gln Ser Ser His Leu
1 5 10 15

Thr Thr His Lys Ile Ile His
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<210> 6
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<400> 6

Tyr Glu Cys Glu Lys Cys Gly Lys Ala Phe Asn Gln Ser Ser Asn Leu
1 5 10 15

Thr Arg His Lys Lys Ser His
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<210> 7
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<400> 7

Tyr Val Cys Ser Lys Cys Gly Lys Ala Phe Thr Gln Ser Ser Asn Leu
1 5 10 15

Thr Val His Gln Lys Ile His
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<210> 8
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<400> 8

Tyr Lys Cys Pro Asp Cys Gly Lys Ser Phe Ser Gln Ser Ser Ser Leu
1 5 10 15

Ile Arg His Gln Arg Thr His
20

<210> 9
<211> 25
<212> PRT
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<400> 9

Tyr Val Cys Asp Val Glu Gly Cys Thr Trp Lys Phe Ala Arg Ser Asp
1 5 10 15

Glu Leu Asn Arg His Lys Lys Arg His
20 25

<210> 10
<211> 23
<212> PRT
<213> Homo sapiens

<400> 10

Phe Gln Cys Lys Thr Cys Gln Arg Lys Phe Ser Arg Ser Asp His Leu
1 5 10 15

Lys Thr His Thr Arg Thr His
20

<210> 11
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<400> 11

Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu
1 5 10 15

Thr Arg His Gln Arg Ile His
20

<210> 12
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<400> 12

Tyr Ile Cys Arg Lys Cys Gly Arg Gly Phe Ser Arg Lys Ser Asn Leu
1 5 10 15

Ile Arg His Gln Arg Thr His
20

<210> 13
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<400> 13

Tyr Glu Cys Asp His Cys Gly Lys Ala Phe Ser Val Ser Ser Asn Leu
1 5 10 15

Asn Val His Arg Arg Ile His
20

<210> 14
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<400> 14

Tyr Thr Cys Lys Gln Cys Gly Lys Ala Phe Ser Val Ser Ser Ser Leu
1 5 10 15

Arg Arg His Glu Thr Thr His
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<210> 15
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<400> 15

Tyr Glu Cys Asn Tyr Cys Gly Lys Thr Phe Ser Val Ser Ser Thr Leu
1 5 10 15

Ile Arg His Gln Arg Ile His
20

<210> 16
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<400> 16

Tyr Arg Cys Glu Glu Cys Gly Lys Ala Phe Arg Trp Pro Ser Asn Leu
1 5 10 15

Thr Arg His Lys Arg Ile His
20

<210> 17
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<400> 17

Tyr Glu Cys Asp His Cys Gly Lys Ser Phe Ser Gln Ser Ser His Leu
1 5 10 15

Asn Val His Lys Arg Thr His
20

<210> 18
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<400> 18

Phe Leu Cys Gln Tyr Cys Ala Gln Arg Phe Gly Arg Lys Asp His Leu
1 5 10 15

Thr Arg His Met Lys Lys Ser
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<400> 19

Tyr Arg Cys Lys Tyr Cys Asp Arg Ser Phe Ser Asp Ser Ser Asn Leu
1 5 10 15

Gln Arg His Val Arg Asn Ile His
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<210> 20
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<400> 20

Tyr Lys Cys Gly Gln Cys Gly Lys Phe Tyr Ser Gln Val Ser His Leu
1 5 10 15
Thr Arg His Gln Lys Ile His Thr Gly Glu Lys Pro Phe Gln Cys Lys
20 25 30

Thr Cys Gln Arg Lys Phe Ser Arg Ser Asp His Leu Lys Thr His Thr
35 40 45

Arg Thr His Thr Gly Glu Lys Pro Tyr Ile Cys Arg Lys Cys Gly Arg
50 55 60

Gly Phe Ser Arg Lys Ser Asn Leu Ile Arg His Gln Arg Thr His Thr
65 70 75 80

Gly Glu Lys

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<400> 21

Tyr Lys Cys Glu Glu Cys Gly Lys Ala Phe Arg Gln Ser Ser His Leu
1 5 10 15

Thr Thr His Lys Ile Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Met
20 25 30

Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln
35 40 45

Arg Ile His Thr Gly Glu Lys Pro Phe Gln Cys Lys Thr Cys Gln Arg
50 55 60

Lys Phe Ser Arg Ser Asp His Leu Lys Thr His Thr Arg Thr His Thr
65 70 75 80

Gly Glu Lys

<210> 22
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<400> 22

Tyr Lys Cys Gly Gln Cys Gly Lys Phe Tyr Ser Gln Val Ser His Leu
1 5 10 15

Thr Arg His Gln Lys Ile His Thr Gly Glu Lys Pro Phe Gln Cys Lys
            20   25   30

Thr Cys Gln Arg Lys Phe Ser Arg Ser Asp His Leu Lys Thr His Thr
        35   40   45

Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Met Glu Cys Gly Lys
    50   55   60

Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln Arg Ile His Thr
65   70   75   80

Gly Glu Lys

<210> 23
<211> 83
<212> PRT
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<223> artificial zinc finger protein

<400> 23

Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu
1   5   10   15

Thr Arg His Gln Arg Ile His Thr Gly Glu Lys Pro Phe Gln Cys Lys
            20   25   30

Thr Cys Gln Arg Lys Phe Ser Arg Ser Asp His Leu Lys Thr His Thr
        35   40   45

Arg Thr His Thr Gly Glu Lys Pro Tyr Glu Cys Asp His Cys Gly Lys
    50   55   60

Ala Phe Ser Val Ser Ser Asn Leu Asn Val His Arg Arg Ile His Thr
65   70   75   80

Gly Glu Lys
<210> 24
<211> 84
<212> PRT
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<220>
<223> artificial zinc finger protein

<400> 24

Tyr Glu Cys Asp His Cys Gly Lys Ser Phe Ser Gln Ser Ser His Leu
1   5   10   15

Asn Val His Lys Arg Thr His Thr Gly Glu Lys Pro Phe Leu Cys Gln
            20   25   30

Tyr Cys Ala Gln Arg Phe Gly Arg Lys Asp His Leu Thr Arg His Met

35 40 45

Lys Lys Ser His Thr Gly Glu Lys Pro Phe Gln Cys Lys Thr Cys Gln
50 55 60

Arg Lys Phe Ser Arg Ser Asp His Leu Lys Thr His Thr Arg Thr His
65 70 75 80

Thr Gly Glu Lys

<210> 25
<211> 83
<212> PRT
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<400> 25

Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu
1 5 10 15

Thr Arg His Gln Arg Ile His Thr Gly Glu Lys Pro Phe Gln Cys Lys
20 25 30

Thr Cys Gln Arg Lys Phe Ser Arg Ser Asp His Leu Lys Thr His Thr
35 40 45

Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Met Glu Cys Gly Lys
50 55 60
Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln Arg Ile His Thr
65 70 75 80

Gly Glu Lys

<210> 26
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<400> 26

Tyr Lys Cys Lys Gln Cys Gly Lys Ala Phe Gly Cys Pro Ser Asn Leu
1 5 10 15

Arg Arg His Gly Arg Thr His Thr Gly Glu Lys Pro Tyr Arg Cys Glu
20 25 30

Glu Cys Gly Lys Ala Phe Arg Trp Pro Ser Asn Leu Thr Arg His Lys
35 40 45

Arg Ile His Thr Gly Glu Lys Pro Phe Leu Cys Gln Tyr Cys Ala Gln

50 55 60

Arg Phe Gly Arg Lys Asp His Leu Thr Arg His Met Lys Lys Ser His
65 70 75 80

Thr Gly Glu Lys

<210> 27
<211> 83
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<400> 27

Tyr Lys Cys Lys Gln Cys Gly Lys Ala Phe Gly Cys Pro Ser Asn Leu
1 5 10 15

Arg Arg His Gly Arg Thr His Thr Gly Glu Lys Pro Tyr Arg Cys Glu
20 25 30

Glu Cys Gly Lys Ala Phe Arg Trp Pro Ser Asn Leu Thr Arg His Lys
35 40 45

Arg Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Met Glu Cys Gly Lys
50 55 60

Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln Arg Ile His Thr
65 70 75 80

Gly Glu Lys

<210> 28
<211> 85
<212> PRT
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<400> 28

Tyr Arg Cys Lys Tyr Cys Asp Arg Ser Phe Ser Asp Ser Ser Asn Leu
1 5 10 15

Gln Arg His Val Arg Asn Ile His Thr Gly Glu Lys Pro Tyr Arg Cys
20 25 30

Glu Glu Cys Gly Lys Ala Phe Arg Trp Pro Ser Asn Leu Thr Arg His
35 40 45

Lys Arg Ile His Thr Gly Glu Lys Pro Phe Leu Cys Gln Tyr Cys Ala
50 55 60

Gln Arg Phe Gly Arg Lys Asp His Leu Thr Arg His Met Lys Lys Ser
65 70 75 80

His Thr Gly Glu Lys
85

<210> 29
<211> 84
<212> PRT
<213> Artificial

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<400> 29

Tyr Arg Cys Lys Tyr Cys Asp Arg Ser Phe Ser Asp Ser Ser Asn Leu
1 5 10 15

Gln Arg His Val Arg Asn Ile His Thr Gly Glu Lys Pro Tyr Arg Cys
20 25 30

Glu Glu Cys Gly Lys Ala Phe Arg Trp Pro Ser Asn Leu Thr Arg His
35 40 45

Lys Arg Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Met Glu Cys Gly
50 55 60

Lys Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln Arg Ile His
65 70 75 80

Thr Gly Glu Lys

<210> 30
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<212> PRT
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<400> 30

Tyr Ser Cys Gly Ile Cys Gly Lys Ser Phe Ser Asp Ser Ser Ala Lys
1 5 10 15

Arg Arg His Cys Ile Leu His Thr Gly Glu Lys Pro Tyr Ile Cys Arg
20 25 30

Lys Cys Gly Arg Gly Phe Ser Arg Lys Ser Asn Leu Ile Arg His Gln
35 40 45

Arg Thr His Thr Gly Glu Lys Pro Phe Gln Cys Lys Thr Cys Gln Arg
50 55 60

Lys Phe Ser Arg Ser Asp His Leu Lys Thr His Thr Arg Thr His Thr

65 70 75 80

Gly Glu Lys Pro Tyr Thr Cys Lys Gln Cys Gly Lys Ala Phe Ser Val
85 90 95

Ser Ser Ser Leu Arg Arg His Glu Thr Thr His Thr Gly Glu Lys
100 105 110

<210> 31
<211> 111
<212> PRT
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<400> 31

Tyr Lys Cys Glu Glu Cys Gly Lys Ala Phe Arg Gln Ser Ser His Leu
1 5 10 15

Thr Thr His Lys Ile Ile His Thr Gly Glu Lys Pro Tyr Ser Cys Gly
20 25 30

Ile Cys Gly Lys Ser Phe Ser Asp Ser Ser Ala Lys Arg Arg His Cys
35 40 45

Ile Leu His Thr Gly Glu Lys Pro Tyr Ile Cys Arg Lys Cys Gly Arg
50 55 60

Gly Phe Ser Arg Lys Ser Asn Leu Ile Arg His Gln Arg Thr His Thr
65 70 75 80

Gly Glu Lys Pro Phe Gln Cys Lys Thr Cys Gln Arg Lys Phe Ser Arg
85 90 95

Ser Asp His Leu Lys Thr His Thr Arg Thr His Thr Gly Glu Lys
100 105 110

<210> 32
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<400> 32

Phe Gln Cys Lys Thr Cys Gln Arg Lys Phe Ser Arg Ser Asp His Leu
1 5 10 15

Lys Thr His Thr Arg Thr His Thr Gly Glu Lys Pro Tyr Glu Cys Asp
20 25 30

His Cys Gly Lys Ala Phe Ser Val Ser Ser Asn Leu Asn Val His Arg

```
        35                  40                  45

Arg Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Glu Glu Cys Gly Lys
    50                  55                  60

Ala Phe Arg Gln Ser Ser His Leu Thr Thr His Lys Ile Ile His Thr
65                  70                  75                  80

Gly Glu Lys Pro Tyr Ser Cys Gly Ile Cys Gly Lys Ser Phe Ser Asp
                85                  90                  95

Ser Ser Ala Lys Arg Arg His Cys Ile Leu His Thr Gly Glu Lys
            100                 105                 110


<210>  33
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<400>  33

Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu
1               5                   10                  15

Thr Arg His Gln Arg Ile His Thr Gly Glu Lys Pro Tyr Thr Cys Ser
            20                  25                  30

Asp Cys Gly Lys Ala Phe Arg Asp Lys Ser Cys Leu Asn Arg His Arg
        35                  40                  45

Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Glu Glu Cys Gly Lys
    50                  55                  60

Ala Phe Arg Gln Ser Ser His Leu Thr Thr His Lys Ile Ile His Thr
65                  70                  75                  80

Gly Glu Lys Pro Tyr Thr Cys Ser Asp Cys Gly Lys Ala Phe Arg Asp
                85                  90                  95

Lys Ser Cys Leu Asn Arg His Arg Arg Thr His Thr Gly Glu Lys
            100                 105                 110


<210>  34
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<400>  34

Tyr Glu Cys Glu Lys Cys Gly Lys Ala Phe Asn Gln Ser Ser Asn Leu
1               5                   10                  15
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Thr Arg His Lys Lys Ser His Thr Gly Glu Lys Pro Tyr Lys Cys Gly
            20                  25                  30

Gln Cys Gly Lys Phe Tyr Ser Gln Val Ser His Leu Thr Arg His Gln
        35                  40                  45

Lys Ile His Thr Gly Glu Lys Pro Phe Gln Cys Lys Thr Cys Gln Arg
    50                  55                  60

Lys Phe Ser Arg Ser Asp His Leu Lys Thr His Thr Arg Thr His Thr
65                  70                  75                  80

Gly Glu Lys Pro Tyr Ile Cys Arg Lys Cys Gly Arg Gly Phe Ser Arg
                85                  90                  95

Lys Ser Asn Leu Ile Arg His Gln Arg Thr His Thr Gly Glu Lys
            100                 105                 110


<210>  35
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<212>  PRT
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<223>  artificial zinc finger protein

<400>  35

Tyr Lys Cys Lys Gln Cys Gly Lys Ala Phe Gly Cys Pro Ser Asn Leu
1               5                   10                  15


Arg Arg His Gly Arg Thr His Thr Gly Glu Lys Pro Phe Gln Cys Lys
            20                  25                  30

Thr Cys Gln Arg Lys Phe Ser Arg Ser Asp His Leu Lys Thr His Thr
        35                  40                  45

Arg Thr His Thr Gly Glu Lys Pro Tyr Ile Cys Arg Lys Cys Gly Arg
    50                  55                  60

Gly Phe Ser Arg Lys Ser Asn Leu Ile Arg His Gln Arg Thr His Thr
65                  70                  75                  80

Gly Glu Lys Pro Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg
                85                  90                  95

Arg Ser His Leu Thr Arg His Gln Arg Ile His Thr Gly Glu Lys
            100                 105                 110


<210>  36
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<212>  PRT
<213>  Artificial

<220>
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<400> 36

Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu
1 5 10 15

Thr Arg His Gln Arg Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Glu
20 25 30

Glu Cys Gly Lys Ala Phe Arg Gln Ser Ser His Leu Thr Thr His Lys
35 40 45

Ile Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Met Glu Cys Gly Lys
50 55 60

Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln Arg Ile His Thr
65 70 75 80

Gly Glu Lys Pro Tyr Val Cys Asp Val Glu Gly Cys Thr Trp Lys Phe
85 90 95

Ala Arg Ser Asp Glu Leu Asn Arg His Lys Lys Arg His Thr Gly Glu
100 105 110

Lys

<210> 37
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<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 37

Tyr Glu Cys Glu Lys Cys Gly Lys Ala Phe Asn Gln Ser Ser Asn Leu
1 5 10 15

Thr Arg His Lys Lys Ser His Thr Gly Glu Lys Pro Tyr Lys Cys Met
20 25 30

Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln
35 40 45

Arg Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Asp Cys Gly Lys
50 55 60

Ser Phe Ser Gln Ser Ser Ser Leu Ile Arg His Gln Arg Thr His Thr
65 70 75 80

Gly Glu Lys Pro Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg
85 90 95

Arg Ser His Leu Thr Arg His Gln Arg Ile His Thr Gly Glu Lys
100 105 110

<210> 38

<211> 111
<212> PRT
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<220>
<223> artificial zinc finger protein

<400> 38

Tyr Lys Cys Glu Glu Cys Gly Lys Ala Phe Arg Gln Ser Ser His Leu
1 5 10 15

Thr Thr His Lys Ile Ile His Thr Gly Glu Lys Pro Tyr Thr Cys Ser
20 25 30

Asp Cys Gly Lys Ala Phe Arg Asp Lys Ser Cys Leu Asn Arg His Arg
35 40 45

Arg Thr His Thr Gly Glu Lys Pro Phe Gln Cys Lys Thr Cys Gln Arg
50 55 60

Lys Phe Ser Arg Ser Asp His Leu Lys Thr His Thr Arg Thr His Thr
65 70 75 80

Gly Glu Lys Pro Tyr Lys Cys Lys Gln Cys Gly Lys Ala Phe Gly Cys
85 90 95

Pro Ser Asn Leu Arg Arg His Gly Arg Thr His Thr Gly Glu Lys
100 105 110

<210> 39
<211> 111
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 39

Tyr Lys Cys Glu Glu Cys Gly Lys Ala Phe Arg Gln Ser Ser His Leu
1 5 10 15

Thr Thr His Lys Ile Ile His Thr Gly Glu Lys Pro Tyr Arg Cys Glu
20 25 30

Glu Cys Gly Lys Ala Phe Arg Trp Pro Ser Asn Leu Thr Arg His Lys
35 40 45

Arg Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Met Glu Cys Gly Lys
50 55 60

Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln Arg Ile His Thr
65 70 75 80

Gly Glu Lys Pro Tyr Arg Cys Glu Glu Cys Gly Lys Ala Phe Arg Trp
85 90 95

Pro Ser Asn Leu Thr Arg His Lys Arg Ile His Thr Gly Glu Lys
100 105 110

<210> 40
<211> 113
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 40

Tyr Glu Cys Asp His Cys Gly Lys Ala Phe Ser Val Ser Ser Asn Leu
1 5 10 15

Asn Val His Arg Arg Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Met
20 25 30

Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln
35 40 45

Arg Ile His Thr Gly Glu Lys Pro Tyr Val Cys Asp Val Glu Gly Cys
50 55 60

Thr Trp Lys Phe Ala Arg Ser Asp Glu Leu Asn Arg His Lys Lys Arg
65 70 75 80

His Thr Gly Glu Lys Pro Tyr Val Cys Ser Lys Cys Gly Lys Ala Phe
85 90 95

Thr Gln Ser Ser Asn Leu Thr Val His Gln Lys Ile His Thr Gly Glu
100 105 110

Lys

<210> 41
<211> 111
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 41

Tyr Ile Cys Arg Lys Cys Gly Arg Gly Phe Ser Arg Lys Ser Asn Leu
1 5 10 15

Ile Arg His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Met
20 25 30
Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln
35 40 45

Arg Ile His Thr Gly Glu Lys Pro Phe Gln Cys Lys Thr Cys Gln Arg
50 55 60

Lys Phe Ser Arg Ser Asp His Leu Lys Thr His Thr Arg Thr His Thr

65 70 75 80

Gly Glu Lys Pro Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg
85 90 95

Arg Ser His Leu Thr Arg His Gln Arg Ile His Thr Gly Glu Lys
100 105 110

<210> 42
<211> 111
<212> PRT
<213> Artificial

<220>
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<400> 42

Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu
1 5 10 15

Thr Arg His Gln Arg Ile His Thr Gly Glu Lys Pro Phe Gln Cys Lys
20 25 30

Thr Cys Gln Arg Lys Phe Ser Arg Ser Asp His Leu Lys Thr His Thr
35 40 45

Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Met Glu Cys Gly Lys
50 55 60

Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln Arg Ile His Thr
65 70 75 80

Gly Glu Lys Pro Phe Gln Cys Lys Thr Cys Gln Arg Lys Phe Ser Arg
85 90 95

Ser Asp His Leu Lys Thr His Thr Arg Thr His Thr Gly Glu Lys
100 105 110

<210> 43
<211> 111
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 43

Tyr Ile Cys Arg Lys Cys Gly Arg Gly Phe Ser Arg Lys Ser Asn Leu
1 5 10 15

Ile Arg His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Gly
20 25 30

Gln Cys Gly Lys Phe Tyr Ser Gln Val Ser His Leu Thr Arg His Gln
35 40 45

Lys Ile His Thr Gly Glu Lys Pro Phe Gln Cys Lys Thr Cys Gln Arg
50 55 60

Lys Phe Ser Arg Ser Asp His Leu Lys Thr His Thr Arg Thr His Thr
65 70 75 80

Gly Glu Lys Pro Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg
85 90 95

Arg Ser His Leu Thr Arg His Gln Arg Ile His Thr Gly Glu Lys
100 105 110

<210> 44
<211> 113
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 44

Tyr Val Cys Asp Val Glu Gly Cys Thr Trp Lys Phe Ala Arg Ser Asp
1 5 10 15

Glu Leu Asn Arg His Lys Lys Arg His Thr Gly Glu Lys Pro Tyr Lys
20 25 30

Cys Pro Asp Cys Gly Lys Ser Phe Ser Gln Ser Ser Ser Leu Ile Arg
35 40 45

His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Glu Glu Cys
50 55 60

Gly Lys Ala Phe Arg Gln Ser Ser His Leu Thr Thr His Lys Ile Ile
65 70 75 80

His Thr Gly Glu Lys Pro Tyr Ile Cys Arg Lys Cys Gly Arg Gly Phe
85 90 95

Ser Arg Lys Ser Asn Leu Ile Arg His Gln Arg Thr His Thr Gly Glu
100 105 110

Lys

<210> 45
<211> 111
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 45

Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu

```
1               5                   10                  15

Thr Arg His Gln Arg Ile His Thr Gly Glu Lys Pro Phe Gln Cys Lys
            20                  25                  30

Thr Cys Gln Arg Lys Phe Ser Arg Ser Asp His Leu Lys Thr His Thr
        35                  40                  45

Arg Thr His Thr Gly Glu Lys Pro Tyr Glu Cys Asp His Cys Gly Lys
    50                  55                  60

Ala Phe Ser Val Ser Ser Asn Leu Asn Val His Arg Arg Ile His Thr
65                  70                  75                  80

Gly Glu Lys Pro Tyr Lys Cys Glu Glu Cys Gly Lys Ala Phe Arg Gln
                85                  90                  95

Ser Ser His Leu Thr Thr His Lys Ile Ile His Thr Gly Glu Lys
            100                 105                 110
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<210> 46
<211> 111
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 46

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Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu
1               5                   10                  15

Thr Arg His Gln Arg Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Met
            20                  25                  30

Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln
        35                  40                  45

Arg Ile His Thr Gly Glu Lys Pro Tyr Arg Cys Glu Glu Cys Gly Lys
    50                  55                  60

Ala Phe Arg Trp Pro Ser Asn Leu Thr Arg His Lys Arg Ile His Thr
65                  70                  75                  80

Gly Glu Lys Pro Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg
                85                  90                  95

Arg Ser His Leu Thr Arg His Gln Arg Ile His Thr Gly Glu Lys
            100                 105                 110
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<210> 47
<211> 113
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 47

Tyr Val Cys Asp Val Glu Gly Cys Thr Trp Lys Phe Ala Arg Ser Asp
1 5 10 15

Glu Leu Asn Arg His Lys Lys Arg His Thr Gly Glu Lys Pro Tyr Lys
20 25 30

Cys Met Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu Thr Arg
35 40 45

His Gln Arg Ile His Thr Gly Glu Lys Pro Tyr Thr Cys Ser Asp Cys
50 55 60

Gly Lys Ala Phe Arg Asp Lys Ser Cys Leu Asn Arg His Arg Arg Thr
65 70 75 80

His Thr Gly Glu Lys Pro Tyr Lys Cys Glu Glu Cys Gly Lys Ala Phe
85 90 95

Arg Gln Ser Ser His Leu Thr Thr His Lys Ile Ile His Thr Gly Glu
100 105 110

Lys

<210> 48
<211> 111
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 48

Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu
1 5 10 15

Thr Arg His Gln Arg Ile His Thr Gly Glu Lys Pro Tyr Glu Cys Asn
20 25 30

Tyr Cys Gly Lys Thr Phe Ser Val Ser Ser Thr Leu Ile Arg His Gln
35 40 45

Arg Ile His Thr Gly Glu Lys Pro Tyr Glu Cys Glu Lys Cys Gly Lys
50 55 60

Ala Phe Asn Gln Ser Ser Asn Leu Thr Arg His Lys Lys Ser His Thr
65 70 75 80

Gly Glu Lys Pro Phe Gln Cys Lys Thr Cys Gln Arg Lys Phe Ser Arg
85 90 95

Ser Asp His Leu Lys Thr His Thr Arg Thr His Thr Gly Glu Lys
100 105 110

<210> 49
<211> 113
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 49

Tyr Lys Cys Glu Glu Cys Gly Lys Ala Phe Arg Gln Ser Ser His Leu
1 5 10 15

Thr Thr His Lys Ile Ile His Thr Gly Glu Lys Pro Tyr Ile Cys Arg
20 25 30

Lys Cys Gly Arg Gly Phe Ser Arg Lys Ser Asn Leu Ile Arg His Gln
35 40 45

Arg Thr His Thr Gly Glu Lys Pro Tyr Arg Cys Glu Glu Cys Gly Lys
50 55 60

Ala Phe Arg Trp Pro Ser Asn Leu Thr Arg His Lys Arg Ile His Thr
65 70 75 80

Gly Glu Lys Pro Tyr Val Cys Asp Val Glu Gly Cys Thr Trp Lys Phe
85 90 95

Ala Arg Ser Asp Glu Leu Asn Arg His Lys Lys Arg His Thr Gly Glu
100 105 110

Lys

<210> 50
<211> 113
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 50

Tyr Lys Cys Glu Glu Cys Gly Lys Ala Phe Arg Gln Ser Ser His Leu
1 5 10 15

Thr Thr His Lys Ile Ile His Thr Gly Glu Lys Pro Tyr Arg Cys Glu
20 25 30

Glu Cys Gly Lys Ala Phe Arg Trp Pro Ser Asn Leu Thr Arg His Lys
35 40 45
Arg Ile His Thr Gly Glu Lys Pro Phe Gln Cys Lys Thr Cys Gln Arg
50 55 60

Lys Phe Ser Arg Ser Asp His Leu Lys Thr His Thr Arg Thr His Thr
65 70 75 80

Gly Glu Lys Pro Tyr Val Cys Asp Val Glu Gly Cys Thr Trp Lys Phe

85 90 95

Ala Arg Ser Asp Glu Leu Asn Arg His Lys Lys Arg His Thr Gly Glu
100 105 110

Lys

<210> 51
<211> 111
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 51

Tyr Thr Cys Lys Gln Cys Gly Lys Ala Phe Ser Val Ser Ser Ser Leu
1 5 10 15

Arg Arg His Glu Thr Thr His Thr Gly Glu Lys Pro Tyr Arg Cys Glu
20 25 30

Glu Cys Gly Lys Ala Phe Arg Trp Pro Ser Asn Leu Thr Arg His Lys
35 40 45

Arg Ile His Thr Gly Glu Lys Pro Tyr Ile Cys Arg Lys Cys Gly Arg
50 55 60

Gly Phe Ser Arg Lys Ser Asn Leu Ile Arg His Gln Arg Thr His Thr
65 70 75 80

Gly Glu Lys Pro Tyr Thr Cys Lys Gln Cys Gly Lys Ala Phe Ser Val
85 90 95

Ser Ser Ser Leu Arg Arg His Glu Thr Thr His Thr Gly Glu Lys
100 105 110

<210> 52
<211> 111
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 52

Tyr Lys Cys Gly Gln Cys Gly Lys Phe Tyr Ser Gln Val Ser His Leu
1 5 10 15

Thr Arg His Gln Lys Ile His Thr Gly Glu Lys Pro Tyr Thr Cys Lys
20 25 30

Gln Cys Gly Lys Ala Phe Ser Val Ser Ser Ser Leu Arg Arg His Glu
35 40 45

Thr Thr His Thr Gly Glu Lys Pro Tyr Arg Cys Glu Glu Cys Gly Lys
50 55 60

Ala Phe Arg Trp Pro Ser Asn Leu Thr Arg His Lys Arg Ile His Thr
65 70 75 80

Gly Glu Lys Pro Tyr Ile Cys Arg Lys Cys Gly Arg Gly Phe Ser Arg
85 90 95

Lys Ser Asn Leu Ile Arg His Gln Arg Thr His Thr Gly Glu Lys
100 105 110

<210> 53
<211> 113
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 53

Tyr Val Cys Asp Val Glu Gly Cys Thr Trp Lys Phe Ala Arg Ser Asp
1 5 10 15

Glu Leu Asn Arg His Lys Lys Arg His Thr Gly Glu Lys Pro Tyr Lys
20 25 30

Cys Gly Gln Cys Gly Lys Phe Tyr Ser Gln Val Ser His Leu Thr Arg
35 40 45

His Gln Lys Ile His Thr Gly Glu Lys Pro Tyr Thr Cys Lys Gln Cys
50 55 60

Gly Lys Ala Phe Ser Val Ser Ser Ser Leu Arg Arg His Glu Thr Thr
65 70 75 80

His Thr Gly Glu Lys Pro Tyr Arg Cys Glu Glu Cys Gly Lys Ala Phe
85 90 95

Arg Trp Pro Ser Asn Leu Thr Arg His Lys Arg Ile His Thr Gly Glu
100 105 110

Lys

<210> 54
<211> 111
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 54

Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu

1 5 10 15

Thr Arg His Gln Arg Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Gly
20 25 30

Gln Cys Gly Lys Phe Tyr Ser Gln Val Ser His Leu Thr Arg His Gln
35 40 45

Lys Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Met Glu Cys Gly Lys
50 55 60

Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln Arg Ile His Thr
65 70 75 80

Gly Glu Lys Pro Tyr Val Cys Ser Lys Cys Gly Lys Ala Phe Thr Gln
85 90 95

Ser Ser Asn Leu Thr Val His Gln Lys Ile His Thr Gly Glu Lys
100 105 110

<210> 55
<211> 111
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 55

Tyr Lys Cys Gly Gln Cys Gly Lys Phe Tyr Ser Gln Val Ser His Leu
1 5 10 15

Thr Arg His Gln Lys Ile His Thr Gly Glu Lys Pro Tyr Ile Cys Arg
20 25 30

Lys Cys Gly Arg Gly Phe Ser Arg Lys Ser Asn Leu Ile Arg His Gln
35 40 45

Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Gly Gln Cys Gly Lys
50 55 60

Phe Tyr Ser Gln Val Ser His Leu Thr Arg His Gln Lys Ile His Thr
65 70 75 80

Gly Glu Lys Pro Phe Gln Cys Lys Thr Cys Gln Arg Lys Phe Ser Arg
85 90 95

Ser Asp His Leu Lys Thr His Thr Arg Thr His Thr Gly Glu Lys
100 105 110

<210> 56
<211> 111
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 56

Phe Gln Cys Lys Thr Cys Gln Arg Lys Phe Ser Arg Ser Asp His Leu
1 5 10 15

Lys Thr His Thr Arg Thr His Thr Gly Glu Lys Pro Tyr Ile Cys Arg
20 25 30

Lys Cys Gly Arg Gly Phe Ser Arg Lys Ser Asn Leu Ile Arg His Gln
35 40 45

Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Met Glu Cys Gly Lys
50 55 60

Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln Arg Ile His Thr
65 70 75 80

Gly Glu Lys Pro Tyr Arg Cys Glu Glu Cys Gly Lys Ala Phe Arg Trp
85 90 95

Pro Ser Asn Leu Thr Arg His Lys Arg Ile His Thr Gly Glu Lys
100 105 110

<210> 57
<211> 111
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 57

Phe Gln Cys Lys Thr Cys Gln Arg Lys Phe Ser Arg Ser Asp His Leu
1 5 10 15

Lys Thr His Thr Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Met
20 25 30

Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln
35 40 45

Arg Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Lys Gln Cys Gly Lys
50 55 60

Ala Phe Gly Cys Pro Ser Asn Leu Arg Arg His Gly Arg Thr His Thr
65 70 75 80

Gly Glu Lys Pro Phe Gln Cys Lys Thr Cys Gln Arg Lys Phe Ser Arg
85 90 95

Ser Asp His Leu Lys Thr His Thr Arg Thr His Thr Gly Glu Lys
100 105 110

<210> 58
<211> 111

<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 58

Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu
1 5 10 15

Thr Arg His Gln Arg Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Lys
20 25 30

Gln Cys Gly Lys Ala Phe Gly Cys Pro Ser Asn Leu Arg Arg His Gly
35 40 45

Arg Thr His Thr Gly Glu Lys Pro Phe Gln Cys Lys Thr Cys Gln Arg
50 55 60

Lys Phe Ser Arg Ser Asp His Leu Lys Thr His Thr Arg Thr His Thr
65 70 75 80

Gly Glu Lys Pro Tyr Lys Cys Lys Gln Cys Gly Lys Ala Phe Gly Cys
85 90 95

Pro Ser Asn Leu Arg Arg His Gly Arg Thr His Thr Gly Glu Lys
100 105 110

<210> 59
<211> 111
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 59

Tyr Lys Cys Pro Asp Cys Gly Lys Ser Phe Ser Gln Ser Ser Ser Leu
1 5 10 15

Ile Arg His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Gly
20 25 30

Gln Cys Gly Lys Phe Tyr Ser Gln Val Ser His Leu Thr Arg His Gln
35 40 45

Lys Ile His Thr Gly Glu Lys Pro Tyr Ile Cys Arg Lys Cys Gly Arg
50 55 60

Gly Phe Ser Arg Lys Ser Asn Leu Ile Arg His Gln Arg Thr His Thr
65 70 75 80

Gly Glu Lys Pro Tyr Ile Cys Arg Lys Cys Gly Arg Gly Phe Ser Arg
85 90 95

Lys Ser Asn Leu Ile Arg His Gln Arg Thr His Thr Gly Glu Lys

100 105 110

<210> 60
<211> 111
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 60

Tyr Glu Cys Asn Tyr Cys Gly Lys Thr Phe Ser Val Ser Ser Thr Leu
1 5 10 15

Ile Arg His Gln Arg Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Glu
20 25 30

Glu Cys Gly Lys Ala Phe Arg Gln Ser Ser His Leu Thr Thr His Lys
35 40 45

Ile Ile His Thr Gly Glu Lys Pro Tyr Arg Cys Glu Glu Cys Gly Lys
50 55 60

Ala Phe Arg Trp Pro Ser Asn Leu Thr Arg His Lys Arg Ile His Thr
65 70 75 80

Gly Glu Lys Pro Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg
85 90 95

Arg Ser His Leu Thr Arg His Gln Arg Ile His Thr Gly Glu Lys
100 105 110

<210> 61
<211> 111
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 61

Tyr Glu Cys Asn Tyr Cys Gly Lys Thr Phe Ser Val Ser Ser Thr Leu
1 5 10 15

Ile Arg His Gln Arg Ile His Thr Gly Glu Lys Pro Tyr Glu Cys Glu
20 25 30

Lys Cys Gly Lys Ala Phe Asn Gln Ser Ser Asn Leu Thr Arg His Lys
35 40 45

Lys Ser His Thr Gly Glu Lys Pro Tyr Lys Cys Met Glu Cys Gly Lys
50 55 60

Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln Arg Ile His Thr
65 70 75 80

Gly Glu Lys Pro Tyr Glu Cys Glu Lys Cys Gly Lys Ala Phe Asn Gln
85 90 95

Ser Ser Asn Leu Thr Arg His Lys Lys Ser His Thr Gly Glu Lys
100 105 110

<210> 62
<211> 111
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 62

Tyr Glu Cys Glu Lys Cys Gly Lys Ala Phe Asn Gln Ser Ser Asn Leu
1 5 10 15

Thr Arg His Lys Lys Ser His Thr Gly Glu Lys Pro Tyr Lys Cys Met
20 25 30

Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln
35 40 45

Arg Ile His Thr Gly Glu Lys Pro Tyr Glu Cys Glu Lys Cys Gly Lys
50 55 60

Ala Phe Asn Gln Ser Ser Asn Leu Thr Arg His Lys Lys Ser His Thr
65 70 75 80

Gly Glu Lys Pro Tyr Glu Cys Asp His Cys Gly Lys Ala Phe Ser Val
85 90 95

Ser Ser Asn Leu Asn Val His Arg Arg Ile His Thr Gly Glu Lys
100 105 110

<210> 63
<211> 113
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 63

Tyr Thr Cys Ser Asp Cys Gly Lys Ala Phe Arg Asp Lys Ser Cys Leu
1 5 10 15

Asn Arg His Arg Arg Thr His Thr Gly Glu Lys Pro Phe Gln Cys Lys
20 25 30

Thr Cys Gln Arg Lys Phe Ser Arg Ser Asp His Leu Lys Thr His Thr
35 40 45

Arg Thr His Thr Gly Glu Lys Pro Tyr Glu Cys Asn Tyr Cys Gly Lys

50 55 60

Thr Phe Ser Val Ser Ser Thr Leu Ile Arg His Gln Arg Ile His Thr
65 70 75 80

Gly Glu Lys Pro Tyr Val Cys Asp Val Glu Gly Cys Thr Trp Lys Phe
85 90 95

Ala Arg Ser Asp Glu Leu Asn Arg His Lys Lys Arg His Thr Gly Glu
100 105 110

Lys

<210> 64
<211> 111
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 64

Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu
1 5 10 15

Thr Arg His Gln Arg Ile His Thr Gly Glu Lys Pro Tyr Thr Cys Ser
20 25 30

Asp Cys Gly Lys Ala Phe Arg Asp Lys Ser Cys Leu Asn Arg His Arg
35 40 45

Arg Thr His Thr Gly Glu Lys Pro Phe Gln Cys Lys Thr Cys Gln Arg
50 55 60

Lys Phe Ser Arg Ser Asp His Leu Lys Thr His Thr Arg Thr His Thr
65 70 75 80

Gly Glu Lys Pro Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg
85 90 95

Arg Ser His Leu Thr Arg His Gln Arg Ile His Thr Gly Glu Lys
100 105 110

<210> 65
<211> 111
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 65

Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu
1 5 10 15

Thr Arg His Gln Arg Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Met
20 25 30

Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln
35 40 45

Arg Ile His Thr Gly Glu Lys Pro Tyr Val Cys Ser Lys Cys Gly Lys
50 55 60

Ala Phe Thr Gln Ser Ser Asn Leu Thr Val His Gln Lys Ile His Thr
65 70 75 80

Gly Glu Lys Pro Tyr Val Cys Ser Lys Cys Gly Lys Ala Phe Thr Gln
85 90 95

Ser Ser Asn Leu Thr Val His Gln Lys Ile His Thr Gly Glu Lys
100 105 110

<210> 66
<211> 113
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 66

Phe Gln Cys Lys Thr Cys Gln Arg Lys Phe Ser Arg Ser Asp His Leu
1 5 10 15

Lys Thr His Thr Arg Thr His Thr Gly Glu Lys Pro Tyr Thr Cys Lys
20 25 30

Gln Cys Gly Lys Ala Phe Ser Val Ser Ser Ser Leu Arg Arg His Glu
35 40 45

Thr Thr His Thr Gly Glu Lys Pro Tyr Val Cys Asp Val Glu Gly Cys
50 55 60

Thr Trp Lys Phe Ala Arg Ser Asp Glu Leu Asn Arg His Lys Lys Arg
65 70 75 80

His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Asp Cys Gly Lys Ser Phe
85 90 95

Ser Gln Ser Ser Ser Leu Ile Arg His Gln Arg Thr His Thr Gly Glu
100 105 110

Lys

<210> 67
<211> 111
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 67

Tyr Ile Cys Arg Lys Cys Gly Arg Gly Phe Ser Arg Lys Ser Asn Leu
1 5 10 15

Ile Arg His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro
20 25 30

Asp Cys Gly Lys Ser Phe Ser Gln Ser Ser Ser Leu Ile Arg His Gln
35 40 45

Arg Thr His Thr Gly Glu Lys Pro Tyr Glu Cys Glu Lys Cys Gly Lys
50 55 60

Ala Phe Asn Gln Ser Ser Asn Leu Thr Arg His Lys Lys Ser His Thr
65 70 75 80

Gly Glu Lys Pro Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg
85 90 95

Arg Ser His Leu Thr Arg His Gln Arg Ile His Thr Gly Glu Lys
100 105 110

<210> 68
<211> 111
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 68

Tyr Ile Cys Arg Lys Cys Gly Arg Gly Phe Ser Arg Lys Ser Asn Leu
1 5 10 15

Ile Arg His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Ser Cys Gly
20 25 30

Ile Cys Gly Lys Ser Phe Ser Asp Ser Ser Ala Lys Arg Arg His Cys
35 40 45

Ile Leu His Thr Gly Glu Lys Pro Tyr Glu Cys Glu Lys Cys Gly Lys
50 55 60

Ala Phe Asn Gln Ser Ser Asn Leu Thr Arg His Lys Lys Ser His Thr
65 70 75 80

Gly Glu Lys Pro Tyr Lys Cys Glu Glu Cys Gly Lys Ala Phe Arg Gln
85 90 95

Ser Ser His Leu Thr Thr His Lys Ile Ile His Thr Gly Glu Lys
100 105 110

<210> 69
<211> 111
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 69

Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu
1 5 10 15

Thr Arg His Gln Arg Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Lys
20 25 30

Gln Cys Gly Lys Ala Phe Gly Cys Pro Ser Asn Leu Arg Arg His Gly
35 40 45

Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Glu Glu Cys Gly Lys
50 55 60

Ala Phe Arg Gln Ser Ser His Leu Thr Thr His Lys Ile Ile His Thr
65 70 75 80

Gly Glu Lys Pro Tyr Ile Cys Arg Lys Cys Gly Arg Gly Phe Ser Arg
85 90 95

Lys Ser Asn Leu Ile Arg His Gln Arg Thr His Thr Gly Glu Lys
100 105 110

<210> 70
<211> 111
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 70

Tyr Ile Cys Arg Lys Cys Gly Arg Gly Phe Ser Arg Lys Ser Asn Leu
1 5 10 15

Ile Arg His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Glu
20 25 30

Glu Cys Gly Lys Ala Phe Arg Gln Ser Ser His Leu Thr Thr His Lys
35 40 45

Ile Ile His Thr Gly Glu Lys Pro Tyr Ser Cys Gly Ile Cys Gly Lys
50 55 60

Ser Phe Ser Asp Ser Ser Ala Lys Arg Arg His Cys Ile Leu His Thr
65 70 75 80

Gly Glu Lys Pro Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg
85 90 95

Arg Ser His Leu Thr Arg His Gln Arg Ile His Thr Gly Glu Lys
100 105 110

<210> 71
<211> 113
<212> PRT
<213> Artificial

<220>
<223> artificial zinc finger protein

<400> 71

Tyr Lys Cys Gly Gln Cys Gly Lys Phe Tyr Ser Gln Val Ser His Leu
1 5 10 15

Thr Arg His Gln Lys Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Met
20 25 30

Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln
35 40 45

Arg Ile His Thr Gly Glu Lys Pro Tyr Val Cys Asp Val Glu Gly Cys
50 55 60

Thr Trp Lys Phe Ala Arg Ser Asp Glu Leu Asn Arg His Lys Lys Arg
65 70 75 80

His Thr Gly Glu Lys Pro Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe
85 90 95

Asn Arg Arg Ser His Leu Thr Arg His Gln Arg Ile His Thr Gly Glu
100 105 110

Lys

<210> 72
<211> 96
<212> PRT
<213> Homo sapiens

<400> 72

Asp Ala Lys Ser Leu Thr Ala Trp Ser Arg Thr Leu Val Thr Phe Lys
1 5 10 15

Asp Val Phe Val Asp Phe Thr Arg Glu Glu Trp Lys Leu Leu Asp Thr
20 25 30

Ala Gln Gln Ile Val Tyr Arg Asn Val Met Leu Glu Asn Tyr Lys Asn
35 40 45

Leu Val Ser Leu Gly Tyr Gln Leu Thr Lys Pro Asp Val Ile Leu Arg
50 55 60

Leu Glu Lys Gly Glu Glu Pro Trp Leu Val Glu Arg Glu Ile His Gln

65 70 75 80

Glu Thr His Pro Asp Ser Glu Thr Ala Phe Glu Ile Lys Ser Ser Val
85 90 95

<210> 73
<211> 260
<212> PRT
<213> Homo sapiens

<400> 73

Tyr Leu Pro Asp Thr Asp Asp Arg His Arg Ile Glu Glu Lys Arg Lys
1 5 10 15

Arg Thr Tyr Glu Thr Phe Lys Ser Ile Met Lys Lys Ser Pro Phe Ser
20 25 30

Gly Pro Thr Asp Pro Arg Pro Pro Pro Arg Arg Ile Ala Val Pro Ser
35 40 45

Arg Ser Ser Ala Ser Val Pro Lys Pro Ala Pro Gln Pro Tyr Pro Phe
50 55 60

Thr Ser Ser Leu Ser Thr Ile Asn Tyr Asp Glu Phe Pro Thr Met Val
65 70 75 80

Phe Pro Ser Gly Gln Ile Ser Gln Ala Ser Ala Leu Ala Pro Ala Pro
85 90 95

Pro Gln Val Leu Pro Gln Ala Pro Ala Pro Ala Pro Ala Pro Ala Met
100 105 110

Val Ser Ala Leu Ala Gln Ala Pro Ala Pro Val Pro Val Leu Ala Pro
115 120 125

Gly Pro Pro Gln Ala Val Ala Pro Pro Ala Pro Lys Pro Thr Gln Ala
130 135 140

Gly Glu Gly Thr Leu Ser Glu Ala Leu Leu Gln Leu Gln Phe Asp Asp
145 150 155 160

Glu Asp Leu Gly Ala Leu Leu Gly Asn Ser Thr Asp Pro Ala Val Phe
165 170 175

Thr Asp Leu Ala Ser Val Asp Asn Ser Glu Phe Gln Gln Leu Leu Asn
180 185 190

Gln Gly Ile Pro Val Ala Pro His Thr Thr Glu Pro Met Leu Met Glu
195 200 205

Tyr Pro Glu Ala Ile Thr Arg Leu Val Thr Ala Gln Arg Pro Pro Asp
210 215 220

Pro Ala Pro Ala Pro Leu Gly Ala Pro Gly Leu Pro Asn Gly Leu Leu
225 230 235 240

Ser Gly Asp Glu Asp Phe Ser Ser Ile Ala Asp Met Asp Phe Ser Ala

245 250 255

Leu Leu Ser Gln
260

<210> 74
<211> 127
<212> PRT
<213> Sacharromyces cerevisiae

<400> 74

Asn Phe Asn Gln Ser Gly Asn Ile Ala Asp Ser Ser Leu Ser Phe Thr
1 5 10 15

Phe Thr Asn Ser Ser Asn Gly Pro Asn Leu Ile Thr Thr Gln Thr Asn
20 25 30

Ser Gln Ala Leu Ser Gln Pro Ile Ala Ser Ser Asn Val His Asp Asn
35 40 45

Phe Met Asn Asn Glu Ile Thr Ala Ser Lys Ile Asp Asp Gly Asn Asn
50 55 60

Ser Lys Pro Leu Ser Pro Gly Trp Thr Asp Gln Thr Ala Tyr Asn Ala
65 70 75 80

Phe Gly Ile Thr Thr Gly Met Phe Asn Thr Thr Thr Met Asp Asp Val
85 90 95

Tyr Asn Tyr Leu Phe Asp Asp Glu Asp Thr Pro Pro Asn Pro Lys Lys
100 105 110

Glu Ile Ser Met Ala Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Ser
115 120 125

<210> 75
<211> 63
<212> PRT
<213> Homo sapiens

<400> 75

Val Ser Val Thr Phe Glu Asp Val Ala Val Leu Phe Thr Arg Asp Glu
1 5 10 15

Trp Lys Lys Leu Asp Leu Ser Gln Arg Ser Leu Tyr Arg Glu Val Met
20 25 30

Leu Glu Asn Tyr Ser Asn Leu Ala Ser Met Ala Gly Phe Leu Phe Thr
35 40 45

Lys Pro Lys Val Ile Ser Leu Leu Gln Gln Gly Glu Asp Pro Trp
50 55 60

<210> 76
<211> 12

<212> DNA
<213> Homo sapiens

<400> 76
gtttgggagg tc 12

<210> 77
<211> 12
<212> DNA
<213> Homo sapiens

<400> 77
tgggaggtca ga 12

<210> 78
<211> 12
<212> DNA
<213> Homo sapiens

<400> 78
gtcagaaata gg 12

<210> 79
<211> 12
<212> DNA
<213> Homo sapiens

<400> 79
gccagagccg gg 12

<210> 80
<211> 12
<212> DNA
<213> Homo sapiens

<400> 80
gagcggggag aa 12

<210> 81
<211> 12
<212> DNA
<213> Homo sapiens

<400> 81
ggggagaggg ac 12

<210> 82
<211> 12
<212> DNA
<213> Homo sapiens

<400> 82
gtggggagag gg 12

<210> 83
<211> 12
<212> DNA
<213> Homo sapiens

<400> 83
ggggcagggg aa 12

<210> 84
<211> 12
<212> DNA
<213> Homo sapiens

<400> 84
gacagggcct ga 12

<210> 85
<211> 12
<212> DNA
<213> Homo sapiens

<400> 85
ggtgggggtc ga 12

<210> 86
<211> 12
<212> DNA
<213> Homo sapiens

<400> 86
caagtgggga at 12

<210> 87
<211> 12
<212> DNA
<213> Homo sapiens

<400> 87
gggtgggggg ag 12

<210> 88
<211> 12
<212> DNA
<213> Homo sapiens

<400> 88
agggggtggg gg 12

<210> 89
<211> 12
<212> DNA
<213> Homo sapiens

<400> 89
gggtggggag ag 12

<210> 90
<211> 12
<212> DNA
<213> Homo sapiens

<400> 90
gagcgagcag cg 12

<210> 91
<211> 12
<212> DNA
<213> Homo sapiens

<400> 91
agaaataggg gg 12

<210> 92
<211> 12
<212> DNA
<213> Homo sapiens

<400> 92
gggggtgggg gg 12

<210> 93
<211> 12
<212> DNA
<213> Homo sapiens

<400> 93
agagccgggg tg 12

<210> 94
<211> 12
<212> DNA
<213> Homo sapiens

<400> 94
agggaagctg gg 12

<210> 95
<211> 12
<212> DNA
<213> Homo sapiens

<400> 95
gtgggtgagt ga 12

<210> 96
<211> 12

<212> DNA
<213> Homo sapiens

<400> 96
gtgtggggtt ga 12

<210> 97
<211> 12
<212> DNA
<213> Homo sapiens

<400> 97
gttgagggtg tt 12

<210> 98
<211> 12
<212> DNA
<213> Homo sapiens

<400> 98
gagggtgttg ga 12
<210> 99
<211> 12
<212> DNA
<213> Homo sapiens

<400> 99
ggtgttggag cg 12

<210> 100
<211> 12
<212> DNA
<213> Homo sapiens

<400> 100
ggggagaggg ac 12

<210> 101
<211> 12
<212> DNA
<213> Homo sapiens

<400> 101
tggggagagg ga 12

<210> 102
<211> 12
<212> DNA
<213> Homo sapiens

<400> 102
ggtggggaga gg 12

<210> 103

<211> 12
<212> DNA
<213> Homo sapiens

<400> 103
agggacgggt gg 12

<210> 104
<211> 12
<212> DNA
<213> Homo sapiens

<400> 104
gacagggacg gg 12

<210> 105
<211> 12
<212> DNA
<213> Homo sapiens

<400> 105
gaggagggag ca 12

<210> 106
<211> 12
<212> DNA
<213> Homo sapiens

<400> 106
gggggtcgag ct 12

<210> 107
<211> 12
<212> DNA
<213> Homo sapiens

<400> 107
gaaggggaag ct 12

<210> 108
<211> 12
<212> DNA
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<400> 108
aatgaagggg aa 12

<210> 109
<211> 12
<212> DNA
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<400> 109
gcggctcggg cc 12

<210> 110
<211> 12
<212> DNA
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<400> 110
gggcgggccg gg 12

<210> 111
<211> 12
<212> DNA
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<400> 111
aaaaaagggg gg 12

<210> 112
<211> 12
<212> DNA
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<400> 112
gcagcggtta gg 12

<210> 113
<211> 12
<212> DNA
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<400> 113
ggggaagtag ag 12

<210> 114
<211> 12
<212> DNA
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<400> 114
agagaagtcg ag 12

<210> 115
<211> 12
<212> DNA
<213> Homo sapiens

<400> 115
gagagagacg gg 12

<210> 116
<211> 12
<212> DNA
<213> Homo sapiens

<400> 116
ggggtcagag ag 12

<210> 117
<211> 12
<212> DNA
<213> Homo sapiens

<400> 117
ggggtggggg ga 12

<210> 118
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Arg Ser Asp Glu Leu Thr Arg His Ile Arg Ile His Thr Gly Gln Lys
20 25 30

Pro Phe Gln Cys Arg Ile Cys Met Arg Asn Phe Ser Arg Ser Asp His
35 40 45

Leu Thr Thr His Ile Arg Thr His Thr Gly Glu Lys Pro Phe Ala Cys
50 55 60

Asp Ile Cys Gly Arg Lys Phe Ala Arg Ser Asp Glu Arg Lys Arg His
65 70 75 80

Thr Lys Ile His Leu Arg Gln Lys Asp
85